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AUTHOR Clark, Burton R.
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ABSTRACT

Ways in which modern higher education has become complex are discussed, along with accommodations to cope with complexity. The growing diversity of tasks that modern higher education systems have undertaken has led to structural differentiation, which deconcentrates the overall system, and academic professionalism, within which academics specialize their interests and commitments in a widening array of subjects and institutions. Large countries may permit diffuse coverage of all subjects, while small countries have to be selective to invest in certain fields. State-guided limitations is one way to try to control complexity. In addition to such planned responses, there are adaptive profession-led and market-led forms of differentiation and integration. (SW)

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THE PROBLEM OF COMPLEXITY IN MODERN HIGHER EDUCATION

Burton R. Clark

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Burton R. Clark

August 1987

Burton R. Clark
Allan M. Cartter Professor of Higher Education
and Sociology, and Chairman, Comparative
Higher Education Research Group

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Comparative Higher Education Research Group
Graduate School of Education
314 Moore Hall
University of California
Los Angeles, California 90024

THE PROBLEM OF COMPLEXITY IN MODERN HIGHER EDUCATION

Burton R. Clark

The base similiarity of modern systems of higher education is that they become more complex. To cope with the unrelenting pressures of complexity, national systems adjust their historic configurations of beliefs, interests, and structures. Hence to pursue the very nature of this fundamental academic trend, to suggest its more important causes, and especially to seek its compelling effects, is to explore basic modes of evolution. Among the modes of adaptation, we undoubtedly will find some impressive cross-national similiarities. But close analysis will surely also reveal large differences that follow from unique national traditions. Guided by the response sets of established orders, nations must necessarily cope with complexity in somewhat different ways. Any theory of convergence that highlights a common drift into complexity, and similar forms of accommodation, will need in time to shade into a theory of divergence that observes individualized national evolutions. In this early analysis, particularly to establish some opening categories, I will concentrate on what seems everywhere operative.

THE FORCES OF COMPLEXITY

With each passing decade a modern or modernizing system of higher education is expected and inspired to do more for other portions of society, organized and unorganized, from strengthening the economy and invigorating government to developing individual talents and personalities and aiding the pursuit of happiness. We also ask that this sector of society do more in its own behalf in fulfilling such grand and expanding missions as conserving the cultural heritage and producing knowledge. This steady accretion of realistic expectations cannot be stopped, let alone reversed. Where among modern nations can we expect a return to the education of a relatively homogeneous three to five percent of the age group? Instead, systems slide over the long-run along the track of elite to mass participation (even if some do not slide very well and stall at minor inclines), relating to more heterogeneous clienteles as they include more students drawn from more segments of the population. Input demands multiply, extending the tasks of teaching and increasing the congruences that must be fashioned if individual desires and institutional capabilities are to mesh. Secondly, where among modern systems can we expect a return to educating for only governmental elites and several

leading professions, the dominant pattern historically in Europe? Instead, as graduates move on to both private and public employment and to a widening range of occupations generally, systems steadily extend their connections to occupational life. On its output side, higher education without doubt is tied to an expanding societal division of labor. Again, the pressure to enlarge the system's bundle of tasks is great, even irresistible.

Thirdly, where among modern systems of higher education can we expect the resident profession to turn away from a widening involvement in the production of knowledge as well as in its refinement and distribution? As a force for enlarging the complexity of higher education, this substantive impulse, embedded in modernity, becomes the steadiest pressure of all. It is driven by the pace set in the international communities of many disciplines, with the biological sciences now the most vivid instance. It is propelled by the disciplinary rewards of specialization that lead to a Virginia Woolf Society and a Conference Group on Italian Politics. It is promoted by the interests of national governments in the fruits of basic science, and by regional and local economic interests in such useful R and D as the improvement of fisheries in Alaska, oil plant management in southern

Norway, and computer services in the cities of northern Italy. The fascinations of specialized research, pure and applied, steadily deepen. Even where a major research sector has evolved separate from universities, as in France and in the Soviet model, university professors seize opportunities to engage in knowledge production and revision within their own shops as well as across the street in the laboratories and offices of the academy. There is no way to keep them away: indeed they are generally the ruling research oligarchs.

With disciplinary linkages operating across institutional and national boundaries, subjects are in the driver's seat. There is quite literally no way to stop the field of history from expanding its boundaries of coverage in time and space and from proliferating its arcane specialties -- nor political science nor economics nor sociology nor anthropology. The basic disciplines are inherently imperialistic.[1] Then, too, new specialties, interdisciplinary as well as disciplinary, are steadily added. By a process of parturition, they have been and are born out of mother fields: broad approaches to science gave way to such specific scientific disciplines as chemistry, geology, biology, and physics in the early and mid-nineteenth century; all-encompassing social subjects

gave rise to economics, political science, sociology, and anthropology in the latter part of the century. By processes of importation and dignification, outside endeavors are brought in and lowly fields, new and old, are raised to respectability: modern languages and technology in the past; management and computer science during the recent decades. Such interdisciplinary fields as environmental studies, peace studies, women's studies and ethnic studies now struggle with varying success to plant a foot squarely in the door of legitimation.

As research both intensifies and diversifies, the academic division of labor accelerates even faster than the rapidly shifting societal division of labor.

Thus, in whatever direction we turn, we confront complexity. If we take research, teaching, and public service as broadly-stated missions of higher education, each becomes over time an elaborate, steadily differentiating set of expectations and tasks. If we pick up on the three categories of general higher education, advanced professional education, and research and training for research that were creatively established in a cross-national perspective by Joseph Ben-David, the outcome is the same.[2] Each is a confused maze. General education can never be whole again, despite periodic efforts to

declare its rebirth around this or that person's list of core values and essential subjects.[3] Professional education shades off in endless permutations: from early-childhood learning specialists to international economic planners just within the single field of education; from airport mechanics to secretaries to cosmetologists in short-cycle vocational higher education. As academia trains for both high and low vocationalism, the culture of one outside occupation after another, in an endless stream, intrudes into the higher education system itself. A relevant staff takes up residence within it, directly representing yet another part of the occupational world. Finally, research and training for research, as already emphasized, is the wildest card of all. Virtually without limit, it is a cultivation of the new.

Then, too, when developing societies seek to modernize their systems of higher education, those systems evolve toward an open-ended, ambigious complexity.[4] Further, when systems in the modern period seek to work out new relations with industry, their tasks multiply. When they seek to accommodate a wide range of local interests by means of regionalization, utilizing different local adaptations, they move further down the road of task diversity.[5]

Just so, how to handle the complexity of tasks and responsibilities necessarily becomes the root problem of system adaptation. Modern systems must do more and more, invest in the new on top of the new, go from uncertainties to still more uncertainties. How, then, do they face up to the multiplication of tasks? What accommodations produce an organized social complexity that works?[6]

COPING WITH COMPLEXITY

The growing diversity of tasks pushes modern systems of higher education toward a number of systemic accommodations. Most important is structural differentiation, an adaptive trend that in its various forms deconcentrates the over-all system. Closely related is the elaboration of academic professionalism, within which academics specialize their interests and commitments in a widening array of subjects and institutions.

Self-Amplifying Structural Differentiation

National systems of higher education have operated in the twentieth century with one type of institution, two or three types, or ten, twenty, or more types.[7] It is now no secret that the more simply structured systems (e.g., Italian higher education today, the Swedish system up to the expansion of the last two decades) have had the greater

difficulty in coping with the growing complexity of tasks. Without an arsenal of organizations that are differently competent, they simply expand their one or two main forms -- in particular, the national public university -- and turn them into conglomerates within which an expanding welter of interest groups fight out all the battles that are involved in doing everything for everyone. Compromises among such competing competencies as undergraduate and graduate studies, practical training and pure scholarship, the humanities and the sciences, have to be made under the gun of organized coercive comparisons that inhere in unified frameworks. Vicious circles of interaction are readily generated in which various major and minor interests block one another's development. The need grows for a separation of tasks whereby groups can get out of each other's way and find organized supportive niches. Sooner or later a working agreement emerges, at least tacitly, that the old-line university really cannot do -- does not want to do -- short-cycle higher education, and hence there is created or allowed to evolve institutes of technology and two-year colleges and other units that pass out first degrees of their own. Sooner or later it becomes reasonably clear that in trying to do well the expanding bundle of tasks involved in the traditional lines of

university performance and status, the dominant sector really cannot do -- does not want to do -- extensive adult or continuing education, especially at less than the most advanced levels, and then we see the creation of an open university or a set of user-friendly regional colleges. Hence, sectorization, in many country-specific forms, can be seen as a general answer to the overloadig of simple structures. If additional types of institutions are not created or permitted to emerge, the all-in conglomerates increasingly become nominal forms, political pretenses to academic unity, while cramping the organized space within which new units undertaking new tasks must find their way. Bypasses and add-ons are then hard to come by.

Notably, despite the convergencies induced by emulative academic drift, the main university sector itself begins to break up into different types of universities. The rising costs of big social science, big humanities, and big arts, as well as big science, increasingly insure that money will not be passed around equally. Within the different major subject clusters, and often discipline by discipline, there will be centers of excellence and centers of non-excellence. If not, high costs spread across the system will drive down access to the system at large; and, highly talented people who want to sit with other highly

talented scholars and scientists, but are not allowed to so concentrate, will flow into the emerging pipelines of braindrain. As different university combinations develop, statesmanship then includes the elaboration of sub-sector ideologies that blunt invidious comparisons and justify second-best and third-best statuses. Have-not institutions may desire and actively seek a single non-invidious central niche; but complexity reverses the tide and moves them in the other direction. In an evolution that is natural for adaptive species, systems move toward more niches rather than fewer.[8]

National systems of higher education have also operated in the twentieth century with control systems that vary from heavily centralized to radically decentralized. It is now no secret among the more centralized cases that the center cannot hold, that one or more national offices, or academic oligarchies, cannot manage in a top-down fashion the sector of society that is most naturally bottom-heavy in its location of disparate expert judgment and that is most naturally resistant to all-system command. We find curious cross-mixtures of centralizing and decentralizing imperatives. Centralization readily captures our attention. After all, the evolution of the British system 1965-1985 is already a classic example ready

for the textbooks. Central ministerial control in France, when loosened for a few years by crisis-level resistance of faculty and students, seems to snap back into place like a rubber band that has been stretched too far. Then, too, after the events of the last two decades, Swedish academics are no strangers to dirigisme.

But the flow of control is not all one way, and systems strain to accommodate the conflicting imperatives of centralization and decentralization. Behind the impulse to decentralize lies the simple fact that the evermore swollen professional underbelly of higher education gives the central cadres a "knowledge problem" they cannot handle.[9] It is well-known that scientists and scholars grope toward truth by an unending, elaborate process of mutual criticism and discovery. Even with the best academics on top, secure in central offices, they cannot effectively substitute their judgment to short-circuit that process. They will not know what is going on at the bottom, in the many departments, laboratories, and programs, in sufficient detail to be able to plan science and scholarship effectively. They are not able to miniaturize the social structure of scholarly interaction and change. Since they are unable to recapitulate the understandings of thousands of professional operatives,

many thousands of bits of tacit knowledge will escape them, no matter how much they amass information. Then, the adaptive structural response is to engage in a layering of authority. In the nationalized systems, decentralization introduces a regional or provincial level of institutional grouping and public accountability.[10] The center is encouraged to devote itself to the setting of "a broad outline of policy" or a broad "framework." In the federal systems, two levels of government continue to vie for influence; with, for example, Australia now relatively top-heavy, the Federal Republic of Germany a case of balanced federalism, and Canada and the United States still radically decentralized.

Particularly in the large nations, growing complexity tends to call out and/or strengthen regional structures. But even these structures find supervision of other than a most general kind extremely difficult to effect in the face of the individualized professionalism that increasingly characterizes the specialties tucked away in hundreds of corners inside the institutions. The institutional levels then become the best hope of the formal integrators: that at the all-campus level, and at a divisional level within the institution, supra-disciplinary gatherings of faculty and administrators can establish boundaries, allocate budgets,

maintain some common internal rewards and sanctions, conduct foreign affairs, and otherwise offer some semblance of a civic order -- all within the bounds of the broad frameworks established by those higher up the national ranks whose job descriptions call for the construction of guidelines.

Now looming large internationally in the differentation of structures of control is the havoc wrecked upon unitary ideals and approaches by privatization. The two largest systems of higher education in the Western world, the American and the Japanese, have been heavily shaped by their critically-important private sectors. In the American case, the private institutions have been historically dominant, they presently number 1500 or about one-half of all institutions, they contain 20-25 percent of the enrollment, and, in both the four-year sector and the university sector, the leading private institutions set the pace for the public brethren. The top 50 four-year colleges are all private; among the top ten universities, six or seven are private. In the Japanese case, the private sector became <u>the</u> vehicle for mass entry, handling 75 to 80 percent of students. It has a variety that stretches from degree mills to institutions now positioning themselves quite high in the institutional hierarchy. In these two leading cases,

especially the American one, the construction of individual institutional niches is a high art.

Especially outside Europe, the encouragement of private higher education is very much on national agendas. Even in Europe, the matter is more than a passing rumor. The recent major studies by Roger Geiger and Daniel Levy have shown that as analysts bring into view the Philippines as well as France, Brazil as well as Sweden, we find that the pros and cons of privatization are situationally-rooted.[11] There are many forms of privateness -- mass and elite, secular and religious, central and peripheral, parallel and divergence in relation to state institutions. In such large cases as the United States, the private sectors may exhibit three or four major types of privateness. Private development has many modern appeals. It can reduce state costs. It often absorbs discontents that otherwise continue to agitate government. It offers alternatives to perceived failures of the state sectors. As part of a broad zig-and-zag adaptation to complexity, private types of universities and colleges may emerge not only in a largely unplanned fashion but also receive support from central officials seeking new paths of development or simply ways to make their own jobs easier.

The Tendency to have both public and private sectors in the over-all system can have extremely powerful effects at the institutional level. Competition is likely to be enhanced. And individual institutions enhance their viability by diversifying their financial base. Private institutions find their way to public treasures; public institutions learn that money exacted from private sources is as green as funds allocated by governments. As institutions mix multiple public sources with numerous private ones they create individualized institutional packages. They also strengthen their defenses against sources that turn ugly. For institutional autonomy in the late twentieth century there is no more urgent dictum than that of avoiding the situation of all financial eggs in one basket. Multiplying the channels of resource allocation becomes a key form of adaptation.

At the level of institutional structure, one hardly needs to argue the case that institutions, whether nominally specialized or comprehensive, elaborate themselves year-by-year horizontally and vertically: horizontally in more departments, more organized research units (ORUs), and more interdisciplinary programs (IDPs); and vertically in degree levels and levels of oversight. As example: a strategic planning committee at my own

institution is examining its entire academic and business organization with an eye toward reorganization that can better position the campus for competitively enhanced strength by the year 2,000. There is much agreement that central bodies operated by the faculty as well as the administration are overloaded, yet at the same time many units on campus are relatively unsupervised. ORUs and IDPs are scattered all over the place, greatly extending the network of basic units that traditionally consisted mainly of departments. The ORUs and IDPs are clearly adaptive units, set up to accommodate research interests, and, separately, teaching interests, that are not well supported by the departments. They may report hardly to anyone; or if they have a reporting line, a central official may find that the number of significant units for which he or she is responsible is twenty not ten, thirty-five not fifteen. Then, too, Berkeley and UCLA have had much experience with centralized faculty personnel structures that increasingly become the Achilles Heels of faculty retention, promotion, and long-range development. Central bodies become bottlenecks that turn three-month actions into ones that stretch over nine, twelve, and fifteen months. Institutions that are awake take these phenomena seriously and try to do something about them: notably, by enlarging

notably, by enlarging the central apparatus so that it can subdivide itself; by more clearly separating critical decisions from routine ones; and, most important, by deconcentrating operational responsibility to the divisional level. Who among us cannot report similar problems of coping with complexity inside the university?

At the disciplinary level, it is clear enough that we all confront an irresisible emergence of new subjects that we ignore at our peril and to which we respond by underpinning them with new and varied organizational units. The disciplinary dimension of the system-wide matrix of disciplines and institutions is restless and self-generating, with an expansionist dynamic, as suggested previously, that has cross-national affiliations behind it. Our own international conference illustrates this dynamic. We are encouraging the professionalization within many countries of the small, emergent, multi-disciplinary field that we call comparative higher education. The field is structurally propped up by a center here and a center there, a cluster of semi-organized interested scholars within a university in one country and a cluster scattered across a half-dozen universities in another. The true believers among us ache for more solid foundations in and among the basic disciplines and the professional schools.

We measure progress by the firming of small bases in an Hiroshima ORU, an Amsterdam center, a coupling of a half-dozen researchers in a study of the Italian professoriate that seeks to utilize a comparative perspective. We note the intellectual progress, or lack of it, over the years in successive conferences in Lancaster and Stockholm and in the books and articles produced by second- and third-generation scholars. Who radically differentiates the academic world? We do. As we pursue scholarship, we differentiate structures as well as ideas and literatures.

Self-Elaborating Academic Professionalism

In a current book on the American professoriate, I portray American academics as having evolved from a first to a second and then to a third "intellectual moment."[12] In a first stage that spanned the colonial period and even stretched into the nineteenth century, academics in my country were temporary hired hands, tutors taken on for a few years before they went off to other work. Academic positions then gradually solidified into a lifelong occupation, one that developed into a fullblown profession (in the modern sense of the word) on the back of specialization. The age of the university that supplanted the age of the college, starting roughly in the 1870s, gave

the occupation a second intellectual moment in which a semi-integrated professionalism obtained. The American Association of University Professors was able to draw at its initiation (1915), and during the quarter-century leading up to World War II, upon the leadership of distinguished scholars at leading research universities, such as John Dewey, E.R.A. Seligman, and Franklin Giddings at Columbia, Roscoe Pound at Harvard, Richard T. Ely at Wisconsin, and Arthur O. Lovejoy at Johns Hopkins. It could reasonably pretend that it represented the interests of the professoriate, even if more academics stay out than enlisted in its cause.[13] The third intellectual movement that has developed during the four decades since 1945 is of an increasingly different character. Academic work is not only set apart in the hands of numerous clusters of trained experts who can claim special knowledge, but it is also greatly differentiated by institutional type. This fragmented professionalism puts involvement and commitment at a different level, that of the disciplines and the institutional types, and turns the AAUP and its several major rival union organizations increasingly into units of secondary and often non-academic affiliation.

Particularly instructive is the night-and-day contrast between the extremes of life in the leading research

universities and the community colleges. The two-year units have grown so much that they now embrace one-third of all students (four million by head-count!), and one-fourth to one-third of faculty. Their faculties teach 15 hours a week, almost entirely in introductory courses, to students many of whom are still performing at the secondary level and who need remedial attention. More students are "terminal vocational" than "academic transfer," and even more are non-matriculated adults. Facing a student body that comes and goes on a short time schedule, the institution needs a disposable faculty. Hence they have turned to part-timers, enlarging their ranks to the point where they outnumber full-time staff. (One-third of the American professoriate is now part-time). Hence we can observe two broad avenues of deprofessionalization, or at least a casting of academic work in forms far removed from those of the leading universities: work moves from full-time to part-time, with the part-timers ("gypsy scholars," "academic nomads," "freeway scholars") piecing together a livelihood as best they can; and work loses its advanced intellectual content, with "scholars" becoming "teachers" who have positions markedly similar to those of American secondary schoolteachers. Discipline matters much less, since few are

doing the advanced things in their fields that differentiate the disciplines.

Across the many fields found in the large universities, we found significant differences in workloads and orientations of faculty in the sciences as contrasted to the humanities; and, more broadly, between life in the professional schools and in the letters and science departments. The latter divide is an important schism. One-half of the faculty in the universities is in the professional schools, where work is clinical as well as scholarly, and where it is increasingly set off in the graduate tier, away from the problems of undergraduate teaching. The demands of the professional-practice dimension, and the tension between it and the academic side, have already produced a plethora of additional faculty roles -- clinical, part-time, non-tenured, tenured without a salary guarantee -- as an internal differentiation that makes the professional schools decidedly differ, from the letters and science departments, even as it helps those schools to cope.

In such professional features, as well as in system characteristics, the American case is an extreme one. But in its extremity it is revealing, often exhibiting in relatively stark form what is more muted in other systems.

What it helps to reveal in this case is that the academic profession steadily decomposes itself as it responds to the complexities of input and output demands and especially to the substantive imperatives of research and scholarship. The profession separates into constituent parts that multiply within its ranks. As it does so, we may intuit, existing controls -- professional and bureaucratic -- are thrown out of whack. If knowledge is power, then new knowledge is new power, expanded knowledge is expanded power, and fragmented knowledge is fragmented power. Then not only do central administrative cadres have a knowledge problem they cannot handle, they have a control problem that grows steadily larger before their eyes. Power steadily accumulates at the operating levels of the system, shielded from easy penetration by arcaneness and ambiguity in its knowledge foundations. Those who would gather all academics in a unified profession also find that the ground slips from under them. Academic professionalism produces power, but it produces it in a highly fragmented form. The natural self-elaboration of our profession turns it into a mosaic of small worlds, different worlds.

COPING WITH STRUCTURAL DIFFERENTIATION AND FRAGMENTED PROFESSIONALISM: WHAT INTEGRATES?

So much has been made of the defects of academic professionalism that we overlook its compelling contributions. Academic reform in the United States, centered on a strengthening of undergraduate general education that is purportedly necessary to save the nation, castigates the disciplines for their narrowness. Reform in Sweden has attempted to realign undergraduate education around interdisciplinary clusters that are labor-market defined. In both cases, the drift of recent reform underestimates what focused professionalism accomplishes for faculty, students, and the system at large.

Academic specialization is one response to the inherent limitations of the human mind. Individuals increasingly cannot expect to cover such major areas as "the social sciences" or "the humanities." It is increasingly odd that we think undergraduate students can and should master such broad domains. As it delineates restricted areas of inquiry and of facts, specialization -- compared to non-specialization -- leads toward mastery and a sense of competence. Most important, specialization develops a particular kind of structured thinking that we call a discipline.[14] In contrast, theme courses and

purportedly interdisciplinary studies typically focus on topics, not intellectual structure. The discipline is treated as a subject matter rather than as a structured method of analysis. Overlooked then is the reality that particular kinds of questions have their own specific systems of analysis. When a question pertains to gross national product, the ways of thinking of physicists and classicists cannot help very much: those of economists can. When a question pertains to Dante's fourth level of Hell, the perspectives of economists become totally irrelevant while the accumulated insights of classicists become relevant. Specialization has rational bases that are the foundation of the modern academic enterprise.

It is around the modern structures of reasoning that we call disciplines that academics develop their professionalism. Since that professionalism is closely tied to disparate fields, each a self-aggrandizing concern, we appropriately portray it as enormously fragmented. But we can also see that professionalism as a crucial way in the modern occupational world by which self-interests are hooked to larger institutional chariots. In the normal course of his or her work, a biologist or a political scientist or a professor of literature can simultaneously serve and blend self-, other-, and ideal-

regarding interests:[15] one's own achievement; the progress of one's department and one's disciplinary groups; and the furtherance of scholarship, the education of the young, and a host of other ideals that give meaning to the academic life. Who in our own invisible college is serving only narrow self-interest? Our colleagues in other specialties are surely doing no less to serve others and to serve ideals, even when they "selfishly" seek greater monetary rewards, higher status, greater individual and group autonomy, and more power. In an age of specialization, academic callings will reside basically not in broad theme courses or in labor-market-defined subjects but in the cultural homes that disciplines construct around their individual structures of knowledge and reasoning. Tunnel by tunnel, the disciplines are simultaneously <u>the</u> centers of meaning and <u>the</u> devices for cosmopolitan linkage.[16]

Further, the disciplines do not simply exist as isolated tunnels, linking individuals in parallel chains that never meet. In coverage of empirical domains, and as modes of reasoning, they overlap. Harold Perkin has described the historian as "a kind of licensed rustler who wanders at will across his scholarly neighbors' fields, poaching their stock and purloining their crops and breaking down their hedges."[17] As poachers, the historians

have good company: modern disciplines are inherently imperialistic. Anthropologists who use to hanker after lost tribes now turn back on their own advanced societies to pursue domains as they please -- the ethnography of the classroom, or the hospital, or the business firm. Sociologists are prepared to offer a sociology of whatever human activity you can think of. You cannot keep economists out of anything, since they are sure they have the keys to the analytical heavens of the social sciences. The boundaries between political science and sociology are so blurred that top scholars in the one can actually be elected to high office in the mainline associations of the other.

We now have at hand a useful vocabulary for conceptualizing and elaborating on this phenomenon. Michael Polanyi has spoken of modern science as consisting of "chains of overlapping neighborhoods."[18] Donald T. Campbell has stressed that a comprehensive social science, or any other large domain of knowledge, is "a continuous texture of narrow specialties." Multiple narrow specialties overlap much like the overlap of scales on the back of a fish. That overlaps produces "a collective communication, a collective competence and breadth."[19] When we take this perspective seriously, the implications for

reform are breathtaking. Efforts to fill gaps between fields, and to bridge fields, by training scholars who have mastered two or more disciplines are doomed to fail. Such efforts are like trying to make the Mississippi River run north instead of south: better to go with the natural flow, and use it. The way to proceed is to make those organizational inventions that will encourage narrow specializations in interdisciplinary areas. The interdisciplinarian must "remain as narrow as any other scholar." The slogan for reform (overdressed in academic rhetoric) becomes: "collective comprehensiveness through overlapping patterns of unique narrownesses."[20]

In a creative essay on how cultural integration may coexist with cultural diversity in a highly differentiated society, Diana Crane has acutely observed that the social system of science is an appropriate model: "Contemporary science comprises hundreds of distinct specialties, but each specialty has connections, both intellectual and social, with other specialties... cultural integration occurs because of overlapping memberships among cultural communities that lead to the dissemination of ideas and values." What we find are "interlocking cultural communities."[21] As we extend this formulation to academic fields more generally, we can say that while modern

academia is a system powered by specialization and hence by diverging interests, it may also be a system that allows for a collective comprehensiveness that is integrative.[22] The analytical handle is the idea of integration through overlap. We no longer need to think that integration can come only from similarity of function, or common values, or united membership in a grand corps. We do not need to ask that we all become Mr. Chips, nor that we pull ourselves together around four values and a core curriculum, nor that we enter a national civil service and join one union. We can understand that integration can come from the bit-by-bit overlap of narrow memberships and specific identities, with specialties and disciplines -- and whole colleges and universities -- serving as mediating institutions that tie individuals and small groups into the enclosure of the whole. For a realm that is so naturally pluralistic, and for which the future promises an ever-widening complexity of task and structure, a large dollop of pluralist theory is not a bad idea.

This line of thinking pushes us toward the relatively unexplored phenomenon of the associational linkages that academics themselves fashion. My recent study of the American academic profession found that, in the United States at least, the associational structure of the

academic profession mirrors the ongoing contest between centrifugal and centripetal academic forces.[23] "Splinteritis" is everywhere. The country has something in the order of 350 associations that are largely or importantly academic, from the omnibus American Association for the Advancement of Science (AAAS) to the John Dewey Society and the Society for Nursing History. Each major association, be it the American Physical Society, the American Psychological Association, or the Modern Language Association, finds itself steadily subdividing into numerous major divisions along subject-matter lines, which then divide still further into subsections. As the associations grow substantively, tracking and furthering their respective fields, they incorporate more specialties and sow the seeds of their own fragmentation. If they are not accomodative, even quick on their feet, specialists break away to form their own associations. The American associations are also now subdividing internally and externally by type of institution: e.g., the community college sector has interests so far removed from those of the research universities that instructors in this realm have and are constituting the likes of the Community College Humanities Association, the Community College

Social Sciences Association, and more discipline-centered ones in mathematics and biology.

Academics associate voluntarily from the bottom-up. They fashion informal individualized sets of ties on their own campuses. They participate in quasi-formal local, regional, and national groups of a dozen or several dozen people who meet separately or within the programs of the "monster meetings." The informal ties link to the quasi-formal, and the quasi-formal to the formal. The small groups connect to large ones that link up in gigantic conglomerates, as when a regional disciplinary association connects to a national one that in turn participates in one or more national and international "umbrella" associations. Professional associating follows well the many natural contours of academe.

CONCLUSION

As national systems of higher education seek the means of enhancing flexibility and responding adaptively, in the face of ever-expanding complexity, they undoubtedly can assist themselves through some state targeting. While large countries may permit diffuse coverage of all subjects, small countries undoubtedly have to be selective, opting to invest only in certain fields. State-guided limitations -- coercive simplicity -- is one way of trying

to control complexity. But beyond such planned responses lie more adaptive profession-led and market-led forms of differentiation and integration. These latter forms depend on more spontaneous, unplanned developments.

The profession-led responses on which I have concentrated depend in higher education upon competitive discovery processes. The give-and-take of scientific fields, and other fields of scholarship, are, at the level of the individual, an "anarchy of production." But out of a furious turmoil of lower level disorder a higher level order can and does evolve. This more spontaneous road to order depends on the interacting competencies, tacit and explicit, of thousands of individuals. They try to help things along by establishing such bottom-up forms of their own devising as informal, quasi-formal, and formal associations. "Spontaneous orders" are likely to be central to a fruitful, changing integration, offering a "mutual coordination in which the actions of each participant both contribute a kind of pressure to the actions of other participants, while simultaneously being guided in its own actions by similar pressures contributed by others."[24]

Asssociating professionally with one another in webs of relationship that form and evaporate as substantive

interests change, academics evolve structures that follow the development of knowledge, rather than the other way around. Flexibility is gained by escaping from the bureaucratic iron cage.[25] It is further enhanced by a fragmenting of the professional iron cage that would be wrought if unity among academics were achieved. Specialization that creates so much freedom, and allows order to follow function, deserves at least two cheers.

The problem of complexity is not without its surpassing ironies. Try as we might to theorize about it and to order it in boxes, the idea of complexity implies the primacy of practice over theory.[26] There is an old joke in science that research is what I am doing when I do not know what I am doing. As a minor paraphrase, complexity is perhaps what we have to think about when we do not know what to think. Emile Durkheim drew a powerful bead on the problem when he argued that generalization was a sort of pride, a refusal to accept the personal restraints and social obligations imposed by complexity, while specialization was an implicit means of adaptation to complexity.[27] This precept for occupational practice can and has been translated into a precept for thinking about politics, the economy, and other social orders: do one's narrow duty and let the complex whole take care of itself.

Theory then must not only maintain a modest sense of limits but also deeply appreciate ambiguity.

At the same time, it still seems to remain the case that only general theoretical reflection, together with a sense of history, will enable us to think through the operation and meaning of our complex social institutions in a systematic way. At the least, when we think about complexity in higher education we are driven to return to fundamental exploration of the ways that spontaneous orders develop within and outside of officially-enacted structures. Such an approach is particularly appropriate in the analysis of a major sector of society -- higher education -- in which a diffuse profession-led specialization and integration is so clearly the main alternative to bureaucratic allocation and linkage.

Notes

[1]On the basic processes of substantive growth in the academic profession, and academia at large, see Walter Metzger, "The Academic Profession in the United States," in The Academic Profession: National, Disciplinary, and Institutional Settings, edited by Burton R. Clark. Berkeley, Los Angeles, London: University of California Press, 1987. Pp. 126-147.

[2]Joseph Ben-David, Centers of Learning: Britain, France, Germany, United States. New York: McGraw-Hill, 1977.

[3]See the illuminating assessment of the state of general or liberal education, past and present, by Sheldon Rothblatt in this volume.

[4]See the chapter by Simon Schartzman in this volume.

[5]See the comments by Ulrich Teichler in this volume.

[6]For a much-overlooked intensive and extensive modern exploration of the problem of societal complexity, see Organized Social Complexity: Challenge to Politics and Policy, edited by Todd R. LaPorte. Princeton: Princeton University Press, 1975.

[7]See Burton R. Clark, The Higher Education System: Academic Organization in Cross-National Perspective. Berkeley, Los Angeles, London: University of California Press, 1983. Pp. 53-62.

[8]On the application of a biological evolutionary perspective to system diversity, see Robert Birnbaum, "System Arguments for Diversity," in ASHE Reader in Organization and Governance in Higher Education, Revised Edition, edited by Robert Birnbaum. Lexington, Mass.: Ginn Custom Publishing, 1984. Pp. 411-423. This article is taken from a larger study: Robert Birnbaum, Maintaining Diversity in Higher Education. San Francisco: Jossey-Bass, 1983.

[9]For a modern treatment of "the knowledge problem," as viewed by an economist advocating a radical agenda for turning away from planning, see Don Lavoie, National Economic Planning: What Is Left? Cambridge, Mass: Ballinger Publishing Company, 1985. Chapter 3, "The Knowledge Problem."

[10]Symptomatic is the reaction now developing in Britain to the centralized powers of the University Grants Committee and The Department of Education and Science: e.g., "Eleven northern universities are contemplating a go-it-alone plan that would loosen the planning controls from London. They

are discussing whether to agitate for the creation of a northern regional university council, which would take over the job of detailed nationalization from the University Grants Committee and foster cooperation among the 11." "Northerners Bid To Plan Their Own Universities," The Times Higher Education Supplement, April 10, 1987, No. 753, p. 1.

[11]Roger L. Geiger, Private Sectors in Higher Education: Structure, Function, and Change in Eight Countries. Ann Arbor: University of Michigan Press, 1986; and Daniel C. Levy, Higher Education and the State in Latin America: Private Challenges to Public Dominance. Chicago: University of Chicago Press, 1986.

[12]Burton R. Clark, The Academic Life: Small Worlds, Different Worlds. Princeton: Carnegie Foundation for the Advancement of Teaching, 1987.

[13]Walter Metzger, op. cit., pp. 167-168.

[14]My formulations in this paragraph have drawn upon Thomas Sowell, "Recipe for Change on Campus," (a book review of Ernest L. Boyer, College: The Undergraduate Experience), Wall Street Journal, April 9, 1987.

[15]The concepts of self-regarding, other-regarding, and ideal-regarding interests are drawn from Jane J. Mansbridge,

Beyond Adversary Democracy. Chicago: University of Chicago Press, 1983. Especially pp. 24-26.

[16]On the basic role of the disciplines as separate cultures and as communities of knowledge, see the work of Tony Becher as represented in his contribution to this conference and in his unpublished manuscript, Forms and Communities of Knowledge (tenative title).

[17]Harold Perkin, "The Historical Perspective," in Perspectives on Higher Education, Eight Disciplinary and Comparative Views, edited by Burton R. Clark. Berkeley, Los Angeles, London: University of California Press, 1984. p. 17.

[18]Michael Polanyi, The Tacit Dimension. Garden City, N.Y.: Doubleday, 1967. p. 72.

[19]Donald T. Campbell, "Ethnocentrism of Disciplines and the Fish-Scale Model of Omniscience," in Interdisciplinary Relationships in the Social Sciences, edited by M. Sherif and C. Sherif. Chicago: Aldine, 1969. Pp. 328, 330.

[20]Ibid, pp. 328, 331.

[21]Diana Crane, "Cultural Differentiation, Cultural Integration, and Social Control," in Social Control: Views from the Social Sciences, edited by Jack P. Gibbs. Beverly Hills, California: Sage Publications, 1982. p. 239.

[22]Burton R. Clark, The Academic Life, Chapter 5, section on "Symbolic Integration."

[23]Ibid, Chapter 8, "The Ties of Association."

[24]Don Lavoie, op. cit., p. 67.

[25]On bureaucracy and profession as twentieth-century iron cages, see Paul J. DiMaggio and Walter W. Powell, "The Iron Cage Revisited: Institutional Isomorphism and Collective Rationality in Organizational Fields, "American Sociological Review, vol. 48, April 1985, pp. 147-160.

[26]Harlan Wilson, "Complexity as a Theoretical Problem: Wider Perspectives in Political Theory," in Organized Social Complexity, edited by Todd LaPorte, op.cit., pp. 281-331. p. 307.

[27]Ibid, p. 315, 331.

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DEPARTMENT OF EDUCATION
LOS ANGELES, CALIFORNIA 90024

September 1, 1987

CHERG UPDATE

Burton R. Clark

During June 1986 we sent to all persons on our international mailing list a "CHERG Update" as a way of reporting on the work of the UCLA Comparative Higher Education Research Group. As a brief follow-up to that announcement, this statement describes the Group's activities during 1986-87 and identifies new publications.

The past year was a quiet one in the Group's 314 Suite in Moore Hall. After serving for five years as a post-doctoral research scholar, Gary Rhoades assumed a faculty position at the University of Arizona. I took a breather between old and new major projects. No conferences were planned or convened. But a number of short- and long-term visitors provided stimulation and good company. A young Finnish scholar, Seppo Holtta, arrived for a two-year residency during which he is preparing a manuscript on the finance and evaluation of higher education. Two graduate assistants from the People's Republic of China, Yinte Wang and Bai Gao, have supplied expertise on higher education in the PRC and have helped me to prepare for a Fall 1987 lecture trip to their country. Occasional visitors have included Atsunori Yamanoi, from Toyama University for two months during the mid-winter; Stefan Kwiatkowski, from Warsaw, for a week during the Spring; and Guy Neave, University of London, for a week during August. The Exxon Education Foundation has continued to assist our efforts with programmatic support.

The next several years promise to be quite active. Beginning July 1987, under a grant from the Spencer Foundation, we have embarked upon a three-year study of the relationship between research and advanced training (graduate education) in Britain, France, Germany, Japan, and the United States. I will be joined in this effort by associates in each of the four foreign countries and by Patricia Gumport, a Stanford graduate, who will serve for two years as a postdoctoral research scholar. This research team will be largely composed by October 1987: further information about the nature of this effort can be obtained at that time.

As reported a year ago, the Group's efforts in recent years have centered on studies of the academic profession. The results of this work will be published in two volumes during September 1987:

Burton R. Clark, editor. The Academic Profession: National, Disciplinary, and Institutional Settings. Berkeley, Los Angeles, London: University of California Press, 1987. $38. This volume contains papers by Harold J. Perkin, Wolfgang J. Mommsen, Erhard Friedberg and Christine Musselin, Walter P. Metzger, Guy Neave and Gary Rhoades, Tony Becher, Sydney Ann Halpern, and Kenneth P. Ruscio that were originally prepared for a 1984 summer conference held at the Bellagio conference center.

Burton R. Clark. The Academic Life: Small Worlds, Different Worlds. Princeton: Carnegie Foundation for the Advancement of Teaching and Princeton University Press, 1987. Hardcover, $28; Paperback, $23. This U.S. study was supported by the Carnegie Foundation and the Mellon Foundation.

Volumes mentioned in the 1986 update that have been published by the University of California Press are now in turn becoming available in paperback. The Higher Education System (1983) has been in paperback since Fall 1986. $11.95. Perspectives on Higher Education (1984) will appear in paperback September 1987. $8.95. (Papers by Harold Perkin, Maurice Kogan, Gareth Williams, Martin A. Trow, Tony Becher, Simon Schwartzman, Ladislav Cerych, and myself). The School and the University (1985) will hopefully appear in paperback within the next twelve months. (Papers by Guy Neave, Ulrich Teichler, Margaret Maden, Lars Ekholm, William K. Cummings, Stanley Rosen, Ernesto Schiefelbein, Philip Foster, Carol Stocking,and Gary Sykes).

We enclose a Working Paper #9, "The Problem of Complexity in Modern Higher Education."

My best regards.

Burton R. Clark

Enclosure